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ABSTRACT

The major purposes of this study were to identify the effects of personal characteristics of teachers and institutional characteristics of schools on teacher mobility. The methodology involved multiple regression analyses of mobility measures on personal characteristic variables and on institutional characteristics with control for personal characteristics. The data were derived from school and teacher records in two California school districts over a 4-year period. Both personal and institutional characteristics were found to affect teacher mobility. Some policy implications of these findings are discussed. (Author)

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PERSONAL AND INSTITUTIONAL CHARACTERISTICS AFFECTING TEACHER MOBILITY*

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1. ISSUES IN THE STUDY OF TEACHER MOBILITY[1]

1. The Research Orientation of Teacher Mobility during the Past Twenty Years

In the past twenty years of research in teacher mobility researchers were predominantly facing a period of increasing expenditure in education. In the fifties enrollment was growing. This fact and the policy of class size reduction created considerably more teaching positions. Teacher demand was much higher than teacher supply.

Research on teacher mobility consequently focused on the reasons for teacher dropout, primarily investigating teacher but also institutional characteristics. Teacher characteristics were mostly studied by means of teacher personnel files of school districts while institutional characteristics were mostly investigated through teacher opinion rather than more objective characteristics.

The policy implications considered in most of the studies on institutional characteristics concentrated on recommending higher salaries, smaller class sizes, and more instructional support for difficult schools. But many studies assume that institutional characteristics are relatively unimportant compared to teacher characteristics. Studies focusing on teacher characteristics provided the school district personnel department with descriptions of teachers to be hired because of their good survival risk.

If school districts were to follow these studies' conclusions, they would avoid hiring young female, married teachers and tend to look for teachers who have at least four years of teaching experience and are near 30 years old; they would prefer unmarried female teachers and male to female teachers. Fortunately, districts consider other factors too. Some districts are limited in their hiring practices for budgetary reasons. They cannot afford to hire experienced teachers. But if they consider the higher turnover rate for young teachers and that the recruitment fee for a teacher is about $1000 (Redefer, 1962), they might well reconsider their hiring policy. Some districts place great weight on the racial distribution of their teachers to that at least the consequences of the above mentioned teacher characteristics have to be seen through these glasses. And then, there are

1) This section is a condensed selection of parts of a report entitled "Personal and Institutional Characteristics Affecting Teacher Mobility. I. The Problem of Teacher Mobility." Stanford Center for Research and Development in Teaching, Stanford University, in production (1973).

many more or less obvious factors to be taken into consideration: college grades, degree held, special training, bilinguality, special work interests ("difficult" or handicapped children).

The simple consequences of these obvious teacher characteristics, as studied in most of the investigations seem to this investigator only relevant to provide the district personnel departments with a general dropout forecasting instrument solely based on teacher characteristics which assumes the status quo. In this sense, a proposal made by Charters is understandable. He developed a model for a teacher's separation chances in a certain time period which was the sum of the probabilities of occurrence of various factors inducing withdrawal from the job within that time unit. Only the probabilities for a few of these factors from existing empirical work are calculable. This model can, however, be completed. It might become a helpful working instrument in forecasting teacher separations but also can be used by school districts and as the basis for the above simplistic hiring policy.

But what is there useful to learn or to infer by the district office from the studies of teacher characteristics and teacher mobility besides an improvement in forecasting such mobility? Are those variables such as age, sex, marital status, and years of experience which are strongly related to teacher mobility also powerful criteria for determining desired school outcomes? This question has not been raised by the studies of teacher mobility and is not the primary concern of the district personnel department. The main interest of the district personnel department is to hire teachers and to lose as few as possible. Control of school outcomes is not their major concern.

Studies on teacher mobility have not investigated whether the better teachers are more dropout prone than the less effective ones. Maybe the ineffective teachers drop out so that the process of teachers staying and dropping out is caused by some unknown Cinderella sorting. Two possible facts are in favor of this hypothesis. One is that the teachers' teaching experience, at least over some years, increases his teaching quality. Inexperienced teachers are usually considered less good teachers than experienced ones. The other possibility is that teachers who are highly motivated to teach surely are less prone to drop out than teachers with

little motivation. Although a highly motivated teacher need not necessarily be a good teacher, there are lots of possibilities that she maybe better than an unmotivated teacher holding other characteristics constant. As age and sex are not usually considered to be related to teaching performance, we do not have any more evidence about the relation of teacher mobility to teaching performance.

To summarize, studies which focus only on teacher characteristics like age, sex, marital status, years of experience, and race and their relations to teacher mobility are exclusively useful in giving a general forecast for the district personnel department on teacher mobility. Only if they simultaneously consider criteria for teaching quality can they be relevant to the individual teacher hiring process. This means that only when teaching quality is equal, might a district be more prone to hire a male than a female married teacher, or decide upon the age or years of experience. But the major background for these investigations was the problem of filling teaching positions. So nearly all studies were carried out at the level of the school district as the hiring agency, taking the teacher as the unit of analysis without consideration of teaching quality and school characteristics.

In the middle sixties educational policy began to be concerned about equal distribution of educational resources. Unequal distribution of educational services was not only found between districts, but also within districts, varying from school to school with schools in low-income areas receiving a considerably smaller share than many schools in white suburban neighborhoods. The general focus on the school revealed differences in teacher staff characteristics between low-income and middle class schools. Only a few studies on teacher mobility, taking the school as the unit of analysis, have been carried out since then. And those had controversial results. Some report much higher teacher mobility in low income schools which is partly due to biased teacher assignment as young, more drop-out prone teachers are more often assigned to low-income schools. Other studies found no differences in teacher mobility between low-income and middle class schools.

Several investigators have argued that teacher mobility in low-income schools is lowered for two reasons:

(1) Poorer teachers, who have not had a chance to transfer to middle

class schools, adapt to the situation and remain.

(2) Teachers in ethnic minority groups who, in large number, are assigned to schools of the same ethnic group, do not have a chance to transfer to middle class white schools and therefore stay in these schools. This has been reported specifically for Black schools and Black teachers. Some studies report that Black teachers on the average are less well trained than white teachers and are more dissatisfied in their jobs in low income schools. Thus teacher mobility might be influenced through the district assignment and transfer policy which can discriminate against certain types of teachers and schools. This might result in a lower teacher turnover rate on the whole although at the same time it might perpetuate unequal educational services among schools.

This argument implies that teacher mobility is only one variable in the evaluation of students' educational resources and that it is very important to study the teachers moves among schools and not just districts in order to evaluate some aspects of the student's educational situation. This task becomes more prominant when we consider a hypothesis originally proposed by Becker (1952), saying that teachers tend to move from low income to middle class schools during their teaching careers. If this is true, then, low income schools would always have many more young inexperienced teachers than middle class schools. But again, little empirical data are available.

Many of the studies of school characteristics fail to objectively investigate the impact of school characteristics on teacher mobility, as they have been to a considerable degree based on teacher surveys and not on actual school data.

There have been policy recommendations, however, asking for smaller class sizes, specific kinds of teacher training, and additional instructional materials for low-income schools which have been supported by studies focusing on student achievement rather than teacher mobility in these schools. Teacher mobility studies at the district level indicate disadvantages for rural areas, small districts, and poor districts.

Now, we are facing the situation of decreasing student enrollment, decreasing school district budgets, and a surplus of teachers. Some school districts because of their financial situation, only hire young

inexperienced teachers because they cost less. Are these inexperienced teachers now predominately in the districts' low-income schools? Now under the situation of teacher surplus, do we find different patterns of teacher mobility compared to the times of high teacher demand? Does this situation now reduce differences in teacher staff charcacteristics between low income and middle class schools? Are there relationships between teacher and school characteristics and teacher mobility? We will attempt to answer these questions in a new empirical study, some of whose result we will present here after clarifying the concept of teacher mobility and defining a model for the relation between teacher, school, district, and other factors and teacher mobility.

2. The Concept of Teacher Mobility and A Model for Its Investigation

The de facto unequal distribution of educational resources and services among districts and even within them focuses attention necessarily on the school as the educational unit with respect to teacher mobility. As teacher mobility above a certain rate is probably disruptive to the educational climate of the school and might have an impact on the outcome of schooling, it is important not only to study mobility rates but to also investigate different kinds and to search for the factors influencing teacher mobility as well as those factors which are influenced by it. Only then will we be able to give specific and relevant recommendations to districts and schools which might be effective in improving the educational situation of pupils.

The teacher mobility variable may be defined as the probability of a teacher leaving a school in which she or he teaches within a specified period of time. I will divide this general concept into subcategories according to the kinds of moves a teacher makes.

(1) Separation: a) Retirement, Disease; A teacher leaves her teaching position at a school after she reaches the retirement age or dies. Although one might expect on the first glance that these factors are something like "natural constants" this is only true, to a limited extent, on the individual level. At the school level the rate of retirement depends on the age distribution of the teachers in the school which is itself dependent on the growth of the district in the past forty years, on characteristics affecting teacher mobility within that time period, such as district hiring policies, current factors such as rules for retirement, the general and individual economic situation, and characteristics of the specific school.

(b) Resignation: A teacher leaves her teaching position at a school and terminates her employment with the school district. She might take a teaching or non-teaching position in another district, or take a job outside education including that of housewife. Termination of employment is the most widely studied subcategory in the previous research on teacher mobility. It remains to be shown whether the major causes are indeed the individual teacher characteristics which were assumed in most of the earlier studies.

(2) Leave of Absence: A teacher leaves her teaching position at a school for a specified time period. This does not imply that after that period she necessarily returns to the same position in the same school nor does it mean that she necessarily will return to teaching at all. A specific leave of absence might be prolonged or followed by resignation or retirement. But teachers on leave remain, during that time period, employees of the district although generally without salary.

(3) Transfer: Transfer is defined as a teacher leaving her position at a particular school in order to take the same kind of position at another school within the same district. Thus transfers to other districts are excluded her and are included under resignation. A teacher who transfers is still, clearly, an employee of the same school district. This aspect of teacher mobility has been only rarely studied.

(4) Promotion: A teacher moves to a non-classroom teaching position with higher salary within the district. These are usually moves from classroom teaching to a teaching specialist's position or to supervisory and administrative positions such as principalships or positions within central office administration. Because of the normal hierarchical structure the rates will be small compared to those in the other sub-categories. When these kinds of moves occur to other districts they are excluded here and included in the category of resignation.

The definitions and categorizations of teacher mobility given above are oriented towards teacher mobility within a district taking the school as the unit of analysis. Many factors can be conceived as being related to teacher mobility. Below illustrative examples of these are grouped and the causal relations between these groups of factors and teacher mobility which seem to have the strongest and most direct effects are shown in the model (Figure 1).

(1) Teacher Characteristics: Age, sex, ethnic or racial group, marital status (if married, spouse's profession and income) number and age of children, health condition, degree held and special credentials, level of teaching (kindergarten, elementary, junior high, and high school), years of experience, motivation for teaching, career orientation, religious affiliation, political and social view, distance between teacher's home and school.

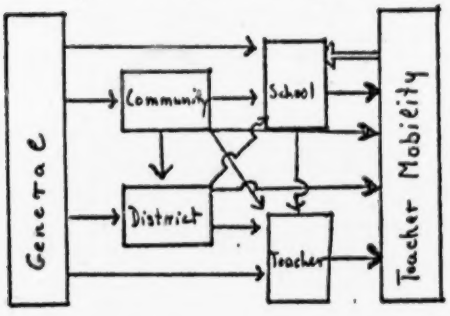
(2) School Characteristics: Student's socio-economic background, pupil-teacher ratio, student turnover rates, average daily attendance, ethnic and racial grouping of students, activity level of students' parents in school, religious affiliation of school-community, student achievement, student learning motivation, teacher staff characteristics (e.g., age, sex, social background, etc.), teacher cliques, relationship with principal, extra duties, size of school and student enrollment, school facilities, instructional materials, special aides, special funding, special programs, age and location of school building, facilities for teachers.

(3) District Characteristics: Length of school year, length of school day, age of obligatory attendance in school, salary schedule, fringe benefits, granting of leaves of absence and sabbitical leave, evaluation criteria, conditions for tenure, rules for the use of special program and curriculum guides, hiring and firing practices, rules for transfer, level of initiative in seeking special funding, interaction between administration and teachers, political orientation of school board.

(4) Characteristics of Community and Area: Region, climate, wealth, racial and ethnic distribution, facilities for health, recreation, libraries, etc., religious distribution, population density, migration, growth or stability.

(5) General Factors: Economic situation (depression, recession, inflation, etc.), job situation, general employment conditions (equal opportunity employment, discrimination), special federal and state funds for education, conceived roles of males and females in society.

Figure 1
Model for the Impact of Categories of Influence on Teacher Mobility



I will just briefly explain the model with a few examples which illustrate only the prevailing directions of influence.

The general factors influence all other groups of factors and teacher mobility through them. The economic situation in general will effect the magnitude of educational resources and thus the job situation. Political issues such as the zero population growth movement influence student enrollment and the job situation. Factors like these can easily be seen as having an effect on the community, the individual school district and school, and on the teachers, all of which have, in turn, as we will see, an impact on teacher mobility.

Community characteristics influence the school district policy and administration but also directly the schools, teacher characteristics and teacher mobility. Industry, climate, cultural facilities, for example, each attract certain kinds of people. Industrial growth might cause heavy inmigration, closing down of an industry out-migration. These events affect teacher mobility directly by decreasing or increasing numbers of students, but also indirectly through the school district's financial situation which is dependent on the wealth of the community, and which, in turn, influences the teachers' salaries, the rules for leaves of absence, the fringe benefits, etc.

Community characteristics also affect the schools directly. The racial and socio-economic distribution of the population, which is partly caused by the job situation, is an important determinant of the school's pupil population which influences teacher mobility. Also

community factors directly influence some teacher characteristics: certain kinds of teachers are attracted by the climate, the wealth of the district, the housing situation, and by the racial and ethnic attributes of the community. Further, the community affects teacher mobility directly rather than through the type of teacher: for example, the crime rate in an area might make a teacher leave.

The school district policy and administration have a very strong impact on the schools and also directly on teacher characteristics and teacher mobility. It affects teacher mobility directly through: its hiring policy, its rules for tenure and leaves of absence, and its budget allocations to individual schools. It also influences teacher mobility through teacher characteristics in aggregate. Although the district has, of course, no influence on an individual teacher's age, sex, etc., basically the distribution of those characteristics are heavily determined by the district's hiring policy. Other effects of a school district on teacher mobility are mediated through its schools: teacher assignments to schools, special funding, desegregation policy, rules for transfer. For example, previous studies have indicated that younger teachers who are more drop-out prone are more often assigned to difficult schools.

The individual school influences teacher characteristics on an individual and on a group level and also teacher mobility directly. If we look at those effects mediated through the school, it is obvious that the district has the strongest impact of all those under consideration.

The school district provides the rules according to which: the school is run, the teachers and principal are assigned, and, to some extent, by which the student population is formed. Curriculum guides, instructional materials, special aides, and special funding are subject to district rules.

School factors as the students' socio-economic background, racial and ethnic distribution, achievement level, discipline, turnover and average daily attendance, are factors influencing teacher mobility as indicated by previous research.

A major conceptual concern at the level of schools and teacher characteristics is the direction of causality. This problem becomes very relevant for general school outcomes, and more narrowly, student achievement. The question is whether the student's low motivation and achievement attract or repel certain kinds of teachers and thus affect teacher mobility or whether certain teacher characteristics partially cause low achievement of students and teacher mobility or low achievement as a consequence of that teacher mobility.

We do know from previous research that teacher characteristics are related to teacher mobility. We also know that certain school characteristics affect teacher mobility. Furthermore, certain schools have higher percentages of teachers with certain characteristics (age, years of experience, sex, etc.) than others. So it is possible that when poorer or more highly drop-out prone teachers are assigned to a school, they might lower student achievement. It might also be that the average or better teachers are assigned to schools with low student

achievement and leave those schools because school characteristics such as many non-motivated and low achieving pupils make their jobs unsatisfying. In the former case, we would expect, in a longitudinal study, that pupil achievement would decrease as a consequence of poor teachers and high teacher mobility, while in the latter case, we would expect high teacher mobility as a consequence of low student achievement. In principle, we could disentangle these influences by means of a longitudinal study. However, we would probably need a relatively large sample of schools in order to adjust for the influence of other factors. Both directions of causality are probably sensible.

For the purpose of this study we divided the school characteristics into two groups: those which are more likely to influence teacher mobility (characteristics of the building such as age; instructional materials and teacher aides; size and enrollment of school; socio-economic level of students; pupil-teacher ratio; student turnover; ethnic and racial groups of the students; principal and teacher staff characteristics), and those which are more likely to be influenced by teacher mobility (student achievement; discipline problems; parents' activities; average daily attendance, organization and communication of teachers). One can surely question this dichotomy in some ways. It would be more precise to indicate how much of achievement or average daily attendance can be accounted for by teacher mobility. As we lack this precision, and oversimplified model of causality will have to suffice.

The assumed causal relationship between school characteristics and teacher mobility is sometimes definitional, for example, student enrollment and teacher-pupil ration define the size of the staff. But there are also indirect relationships of teacher characteristics as were discussed earlier.

We also saw earlier that teacher characteristics relevant to teacher mobility are affected by most of the foregoing groups of factors. However, it always seems important to differentiate between the influence of individual teacher characteristics (age, sex, etc.), and teacher characteristics at the district level (distribution of age, sex, etc.).

3. Objectives of the Present Study and Data Sources

Using the concept of teacher mobility with its subcategories of separation (retirement and resignation), transfer, leave of absence, and promotion, we will using the model explained in the previous section attempt:

(1) to identify the relationship between a set of teachers' personal characteristics and teacher mobility;

(2) to identify the relationship between school characteristics and teacher mobility;

(3) to identify the influence of school district, community and general characteristics on teacher mobility;

(4) to differentiate the influence on teacher mobility of teachers personal characteristics from those of school characteristics and district as well as community characteristics.

These questions are the major foci of the study. Questions (1), (2), and (4) are most directly answerable within the scope of this study which is focused on only two districts. On question (3) this study may only shed a little light. We will attempt to answer these questions and discuss there implications for policy decisions on the basis of selected variables from one of the school districts studied.

The sources of data for this study are two California school districts (Richmond, San Jose) which have some comparable features as well as some clearly distinct characteristics. The major data sources were the districts' teacher files for the years 1968-69 through 1971-72 and several state and federal reports on schools in these districts with respect to pupil, staff, and administrative characteristics of schools over the four year period of the study. The data collection was carried out between February and July, 1972.

4. Methods and Techniques of Data Analysis

The major methodological prerequisite for carrying out this study was the creation of a data file organized by school for the two urban California school districts which contains a record for:

(1) Each school in each district containing a series of characteristics, permanent as well as varying, for a period of four years (1968-69 through 1971-72). Some examples of the school characteristics and characteristics of the pupils and communities served by the school were: pupil's ethnic distribution, enrollment, achievement, socio-economic ratings of the school community, etc.

(2) Each teacher who taught in each school during the four year period (1968-69 through 1971-72) is characterized by personal characteristics, permanent and varying. Some examples of teachers' personal characteristics were: race, sex, age, years of experience, educational level, etc.

Multiple regression analyses were performed using the individual teacher as the unit of analysis to establish the relationship between the teachers' personal characteristics and teacher mobility. These regression analyses also allow the production of control variables which summarize the influences of these characteristics on teacher mobility. Values for these control variables were produced for every individual in the sample. They measure the teachers' propensity to leave the school based on their personal characteristics. These values were averaged for all the teachers in a particular school to produce an aggregate teacher mobility propensity measure for each school. These control variables were used together with a set of school characteristics thought to be relevant for teacher mobility in regression equations which were defined using school as the unit of analysis. These equations allow the evaluation of the effects of the various group characteristics on teacher mobility while controlling for personal propensity to leave on the part of the teachers in a given school.

We will, however, first give a brief description of the school district (San Jose) and the selected teacher and school characteristics and their relations to teacher mobility on the basis of cross tabulations and only after these basic analyses will the results of the regression analyses be presented and discussed.

II. Teacher Mobility in a California School District

1. Characteristics of the Area and the School District[2)]

San Jose (California) is situated at the south end of San Francisco Bay. During the last decade it was the fastest growing major city in the United States (population 1960: 204,196; 1970: 443,950). The income per household was with about $13,000 in 1970 one of the highest in California. The only large ethnic minority group is Mexican-American.

The San Jose Unified School District is, with a student population of over 35,000, one of the nations' larger districts. It has 36 elementary and 12 secondary schools. With more than a fourth of the student population, Mexican-Americans form a sizable minority group, all other minority groups having about two percent or less of the population. A high percentage of Mexican-American students come from low income families concentrated in the inner-city of San Jose. Thus the schools in the district vary widely with respect to the racial and ethnic distribution of pupils. Teacher salaries in California are the highest in the nation. San Jose's minimal teachers' salaries are even above the California average minimum. The above characteristics were selected to form a concrete background for the analysis of teacher mobility.

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[2]Sections 1 through 3 are condensed parts of a report: "Descriptive Characteristics of the San Jose Unified School District." Stanford Center for Research and Development in Teaching, Stanford University (in Production).

2. Description of Teacher and School Variables

This study is restricted to the analysis of teacher mobility in elementary schools (kindergarten through grade 6), as we conceive different dynamics for elementary and secondary schools and were not able to carry out studies on both school levels. The teacher variables selected for this analysis are the following:

1) Sex

2) Age

3) Length of service in the district

4) Years of teaching experience (salary step)

5) Highest degree held

6) Professional growth measured in semester graduate units (salary class)

We further selected the following school variables:

a) Pupil enrollment

b) Percent teachers "Other white" (not: Spanish surname, Negro, Oriental, other non-white)

c) Percent pupils with Spanish surname

d) Socio-economic status of student population measured as percent pupils receving a free lunch

Most of the variables are self-explanatory and the levels that they assume will be clear from the tables presented later. It seems, however, necessary to add that years of teaching experience (4) which is one component of the salary schedule, is only credited up to 12 years and that professional growth (6) measured in semester graduate units, based at the Bachelor's degree, forms the other major component of the salary schedule.

With respect to the school variables it seems necessary to explain that we selected the percentage of pupils receiving a free lunch as the best obtainable variable to measure the socio-economic status (d) of the student population. Also, it should be mentioned that the racial and ethnic identification of teachers (b) was only available at the level of the school.

These variables are the independent variables in our analyses, the dependent variables being the subcategories of teacher mobility using the following definitions:

(1) Separation (resignation and retirment): Teachers leave their teaching job either to retire or to end their employment with the district for any other reason such as moving, taking a job in another district, etc.

(2) Leave of absence: A teacher remains an employee of the district but takes a leave for three quarters of the school year or more. In this category we also include promotions to non-teaching jobs because there were too few to form a separate category.

(3) Transfer: A teacher moves from one school to another or to or from an assignment in the central office but continues teaching with at least half a normal teaching load.

(4) Stay: A teacher stays at the same school over the period.

A teacher is defined as carrying at least half a normal teaching load.

Teacher mobility will be investigated first for a two-year period: 1969/70 to 1971/72.

3. Description of the Teacher Population

The table below (Table A.1.) contains a few variables which are intended to characterize San Jose's elementary teachers for the last three school years.

Table A.1. Selected Characteristics from San Jose's Elementary School Teachers

		School Year		
		1969/70*	1970/71	1971/72
Percent Increase to Previous Year	Teacher	8.3	8.3	3.5
	Pupils	6.0	2.1	- .6
Percent Teachers Newly Hired		19.8	15.5	11.3
Percent Male Teachers		9.7	9.9	11.1
Percent Teachers with M.A. or more	Total	16.4	15.8	13.8
	Newly Hired	10.6	5.4	5.1
Percent Teachers with Spanish Surname		3.0	3.6	5.3

*N = 772

The total number of elementary school teachers who were carrying at least half a normal teaching load was 772 in 1969/70. A comparison of the increase in teachers to that of pupils shows that the number of teachers increased considerably more than the pupils. Even in school-year 1971/72 the number of teachers still increased by 3.5 percent while the student enrollment was decreasing slightly. Thus class sizes have presumably dropped during this period.

The district seems to be making efforts to hire more teachers from minority groups. As about one-fourth of the pupil population is

Mexican-American, the increase in teachers with Spanish surnames indicates a concern for this minority group, although the percentage of Mexican-American teachers is still low compared to that of pupils.

The percentage of teachers with a Master's degree or more is smaller in San Jose than in the United States as a whole. It is also decreasing. Looking at the degrees of teachers who were hired during each of the last years, it seems that the district policy is to hire fewer teachers with a Master's degree. Budgetary constraints could be a reason for this. It is also obvious that the number of newly hired teachers is decreasing. The reason for this can be multifold: fewer teachers retire because of changes in the age distribution; or fewer teachers resign, because of the job situation; or fewer teachers take a leave of absence.

4. Zero-Order Relations Between Teacher Characteristics and Teacher Mobility

Tables B.1.1. through B.1.6. are tables of teacher mobility rates. These tables are based on cross-tabulations of each set of teacher mobility categories. The teacher characteristics in these tables are identical with the list of teacher variables given above. The rates in a particular table are not adjusted for the variables represented in the other tables.

Table B.1.1

Teachers' Sex by Teacher Mobility (1969/70 - 1971/72)

	N	%	Percent Separation	Leave of Absence	Transfer	Stay
Male	75	9.8	8.0	1.3	17.3	73.4
Female	694	90.2	16.4	7.6	13.5	62.5
Difference			8.4	6.3	-3.8	-10.9
Diff./stand. err. diff.				-3.8**		2.0*

* p < .05

**p < .005

Table B.1.2.

Degrees Teachers Hold by Teacher Mobility (1969/70 - 1971/72)

Degree Held	N[1)]	%	Percent Separation	Leave of Absence	Transfer	Stay
B.A.	640	83.6	15.9	7.5	12.7	63.9
M.A.	126	16.4	14.3	3.2	19.8	62.7
Difference				4.3	-7.1	
Diff./stand. err. diff.				2.3*	-1.9	

*p < .05

1) Three teacher data are missing

Table B.1.3.

Teachers' Salary Class by Teacher Mobility (1969/70 - 1971/72)

Salary Class*	N**	%	Percent Separation	Leave of Absence	Transfer	Stay
A: B.A. or less	165	21.5	26.7	10.3	7.3	55.7
B: B.A. + 15 to 29 SGU*	165	21.5	12.7	9.7	14.6	63.0
C: B.A. + 30 to 44 SGU	171	22.3	14.6	7.0	13.5	64.9
D: B.A. + 45 to 59 SGU	106	13.8	11.3	4.7	16.1	67.9
E: B.A. + 60 & more SGU	161	20.9	10.6	2.5	19.2	67.7

*Teacher with an earned master's or doctor's degree are granted an additional sum in their salary class.
**One teacher datum is missing.
*SGU = Semester graduate units

Table B.1.4.

Teachers' Age by Teacher Mobility (1969/70 - 1971/72)

Age*	N**	%	Percent Separation	Leave of Absence	Transfer	Stay
22 - 29	299	38.9	21.7	12.7	10.7	54.9
30 - 37	156	20.3	13.5	7.7	17.3	61.5
38 - 45	145	18.9	4.8	1.4	17.2	76.6
46 - 53	87	11.3	4.6	2.3	21.8	71.3
54 - 65	81	10.6	27.2	.0	4.9	67.9

*Computed as of December 31, 1969.
**One teacher datum is missing.

Table B.1.5.

Years of Teaching Experience (Salary Step) by Teachers Mobility (1969/70-1971/72)

Years of Teaching Experience	N*	%	Percent			
			Separation	Leave of Absence	Transfer	Stay
- 2	126	16.4	25.4	6.4	8.7	59.5
3 - 4	122	15.9	20.5	9.8	11.5	58.2
5 - 6	128	16.7	16.4	15.6	16.4	51.6
7 - 8	118	15.4	12.7	6.8	9.3	71.2
9 - 10	117	15.2	8.5	2.6	18.0	70.9
11 -	157	20.4	10.2	1.9	18.5	69.4

*One teacher datum is missing.

Table B.1.6.

Teachers' Length of Service in the District by Teacher Mobility (1969/70-1971/72)

Years of Service	N	%	Percent			
			Separation	Leave of Absence	Transfer	Stay
0	152	20.0	30.3	4.6	6.6	58.5
1	89	11.7	18.0	6.7	10.1	65.2
2 - 4	211	27.8	10.9	10.9	17.5	60.7
5 - 7	113	14.9	6.2	15.0	16.8	62.0
8 - 10	50	6.6	16.0	2.0	22.0	60.0
11 - 13	53	7.0	5.7	.0	17.0	77.3
14 - 19	62	6.9	9.7	.0	14.5	75.8
20 and more	39	5.1	28.2	.0	7.7	64.1

*At the beginning of the school year 1970/71.

5. Adjusted Relations Between Teacher Characteristics and Teacher Mobility

A series of three multiple regression analyses using teachers as the units of analysis was performed on the teacher mobility data. The dependent variables were dichotomies representing whether or not a teacher who was teaching in the district in 1969/70 was (a) no longer employed, (b) on leave of absence, or (c) teaching in a different school in 1971/72. The variables were coded "1" if the category occurred or if the teacher remained teaching in the same school. The independent variables were based on the teachers' characteristics during the 1969/70 school year. These variables also took the form of dichotomies for each of the levels of each variable. One level of each variable was omitted from the regression to avoid redundancy. The variables and their levels are labeled in the tables which report the unadjusted and adjusted cross tabulations of each with teacher mobility.

The regression analyses model, used for the results reported here, contained main effects only and did not allow the evaluation of interactions representing non-additive effects of independent variables on teacher mobility.

Tables B.2.1. through B.2.6 are based on the regression analyses and contain estimates of the teacher mobility rates for each category of each independent variable. These rates are adjusted for differences in the distributions of the other teacher characteristics between the levels of the variable in question. These adjusted rates are fixed to be at

particular levels of each of the other variables. To the tables as a whole the following levels were picked to form a standard basis for the adjusted rates:

Sex -- Female
Degree Held -- B.A.
Salary Class -- C
Age -- 30 to 37
Years of Experience -- 7 to 8
Length of Service in the District -- 2 to 4.

These levels may seem, and are in fact, relatively arbitrary. However, in order to generate concrete adjusted values, a selection of particular levels must be made. This selection does not affect relevant interpretations of the tables as is explained below.

The negative values appearing in some of the tables are due to the fact that an ordinary additive regression model was used to fit a bounded (0/1) dependent variable and thus can produce values outside the range of ordinary proportions (= rates). The negative values should be interpreted, in the contexts which they appear, as representing rates which are close to zero. In general, however, the tables should be interpreted as indicating the differences in rates between levels of the independent variable in question. It is these differences which are independent of the particular levels of the control (= adjustment) variables in the additional model and it is these differences which should be compared to the unadjusted differences in teacher mobility rates (Tables B.1.1. through B.1.6.). As the differences between the levels are independent of the particular levels of the control variables, the arbitrary selection of levels for a standard basis does not affect the interpretation.

Tables B.2.1. through B.2.6. are parallel tables to Tables B.1.1. through B.1.6. They contain the adjusted rates of the categories of teacher mobility for each level of each teacher variable. In our comparisons of the unadjusted with the adjusted tables we will focus on how the adjustment has changed the differences between the rates for different levels of the variable under discussion.

Table B.2.1.

Teachers' Sex by Teacher Mobility (1969/70 - 1971/72) Adjusted for Other Teacher Characteristics.

			Percent**			
	N*	%	Separation	Leave of Absence	Transfer	Stay
Male	75	9.7	29.2	-2.8	8.3	65.3
Female	697	90.3	31.9	2.6	9.6	55.9

*Sample size from teacher level regression analysis is N = 772

**Adjusted for Degree Held, Professional Growth, Age, Years of Experience, and Length of Service in the District

Table B.2.2. Degrees Teacher Hold By Teacher Mobility (1969/70 - 1971/72) Adjusted for Other Teacher Characteristics

			Percent**			
Degree Held	N*	%	Separation	Leave of Absence	Transfer	Stay
B.A.	646	83.7	21.7	2.1	9.5	66.8
M.A.	126	16.3	28.6	1.3	11.6	58.4

*Sample size from teacher level regression analysis is N = 772

**Adjusted for Sex, Professional Growth, Age, Years of Experience, and Length of Service in the District

Table B.2.3. Teachers' Professional Growth (Salary Class) By Teacher Mobility (1969/70 - 1971/72) Adjusted for Other Teacher Characteristics

Salary Class[1]	N[3]	%	Percent[4] Separation	Leave of Absence	Transfer	Stay
A: B.A. or less	165	21.4	32.6	5.3	1.2	60.9
B: B.A.+15 to 29 SGU[2]	167	21.6	25.7	4.8	5.2	64.2
C: B.A.+30 to 44 SGU	172	22.3	22.7	3.5	5.7	68.1
D: B.A.+45 59 SGU	107	13.9	25.0	3.1	5.2	66.7
E: B.A.+60 & more SGU	161	20.9	21.4	1.7	7.9	69.1

1) Teachers with an earned Master's or Doctor's degree are granted an additional sum in their salary class

2) Semester Graduate Units

3) Sample size from teacher level regression analysis is N = 772

4) Adjusted for Sex, Degree Held, Age, Years of Experience, Length of Service in the District

Table B.2.4.

Adjusted Teachers' Age by Teacher Mobility (1969/70 - 1971/72)

Age*	N**	%	Percent*** Separation	Leave of Absence	Transfer	Stay
22 - 29	299	38.7	12.7	12.5	17.7	57.1
30 - 37	156	20.2	10.3	6.8	21.8	61.1
38 - 45	146	18.9	4.4	2.2	19.3	74.1
46 - 53	89	11.5	5.7	2.4	21.9	70.1
54 - 65	82	10.6	24.5	0.8	6.4	68.2

* Computed as of December 31, 1969

** Sample size from teacher level regression analysis is N=772.

*** Adjusted for years of service, sex, highest degree, salary class, and salary step.

Table B.2.5. Years of Teaching Experience (Salary Step) By Teacher Mobility (1969/70 - 1971/72) Adjusted for Other Teacher Characteristics

Years of Teaching Experience	N*	%	Percent** Separation	Leave of Absence	Transfer	Stay
- 2	126	16.3	28.4	.0	6.8	64.8
3 - 4	123	15.9	32.0	.0	3.2	64.7
5 - 6	128	16.6	27.5	6.4	8.3	57.9
7 - 8	121	15.7	28.0	-1.2	-1.1	74.4
9 - 10	117	15.2	25.5	-3.3	6.2	71.7
11 -	157	20.3	20.5	2.7	11.5	65.4

*Sample size from teacher level regression analysis is N = 772.

**Adjusted for Sex, Degree Held, Professional Growth, Age, and Length of Service in the District

Table B. 2.6.

Teachers' Length of Service in the District by Teacher Mobility (1969-70 - 1971/72) Adjusted for Other Teacher Characteristics

Years of Service	N*	%	Percent** Separation	Leave of Absence	Transfer	Stay
0	152	19.7	26.7	-5.7	3.9	75.2
1	89	11.5	15.4	-0.7	9.0	76.4
2 - 4	214	27.7	10.5	5.1	15.5	68.9
5 - 7	113	14.6	8.9	9.6	12.5	69.0
8 - 10	50	6.5	20.9	1.6	16.1	61.4
11 - 13	53	6.9	12.5	0.4	10.2	76.8
14 - 19	62	8.0	16.1	0.2	7.7	75.9
20 and more	39	5.1	25.9	0.9	7.2	66.0

*Sample size from teacher regression analysis is N = 772

**Adjusted for Sex, Degree Held, Professional Growth, Age, and Years of Experience

Sex: An overall comparison of teacher mobility between unadjusted and adjusted values shows that the mobility for female teachers is higher than for males. Female teachers stay less long in a particular school than their male colleagues, even after control for effects of other characteristics. It is obvious, however, that the differences in teacher mobility are considerably smaller when we controll for degree, professional growth, age, and teaching experience, than we previously thought. The difference between separation rates nearly disappears after adjustment. This is unexpected, because so many previous studies report higher drop-out rates for female than for male teachers. The difference on transfer rate also almost disappears after adjustment. It even changed sign. Leave of absence seems not to depend on the control factors. The difference stays about the same after adjustment and indicates that females take more leaves of absence than males, a fact that is mainly caused by motherhood and the mother role. On the whole this comparison shows that the causal factor for separation is obviously primarily not sex but other factors, a finding which is contradictory to most previous research.

Degree Held: On the whole it seems that teachers with a Master's degree, even after controlling for sex, professional growth, age, and teaching experience, are more mobile than teachers with a Bachelor's degree. That fact that they stay less long at a particular school than teachers with a Bachelor's degree is mainly due to their higher separation rate. Differences in rates of leave of absence and transfer

disappear when controlling for other factors. It might be that teachers with a Master's degree do not plan a career as a classroom teacher and resign in order to take other than teaching positions on the elementary level.

Professional Growth (Salary Class): Before adjustment there was a large difference in the separation rates of the lowest (A) and adjacent (B) salary class level. After controlling for sex, degree held, age, and teaching experience, this difference has shrunk considerably, but still a higher separation rate for teachers with only the minimal teaching requirements is obvious. No difference exists among the other salary classes and in the category of leave of absence no particular salary class seems to have a discrepant effect. After adjustment the differences in rates for leave of absence diminish in all salary classes. In the category of transfer it looked, before adjustment, as if rate would be a function of salary class. After controlling for other teacher characteristics this relation disappears. Most of the differences are due to other factors. The salary class thus has effects on teachers' rate of staying at a particular school.

Age: Age is a relatively strong factor in teacher mobility. The unadjusted as well as the adjusted rates for teachers who stay at a particular school over more than a two year period indicate that younger teachers leave the school at considerably higher rate. When we ask where these teachers go, it becomes clear that younger teachers have higher drop-out rates although the difference shrinks very much after adjustment for sex, degree held, salary class, and teaching experience. Also a higher

percentage of younger teachers take leaves of absence. Further, age has an effect on transfer independent of other factors. On the whole, it is obvious that age has an effect on teacher mobility but it is also correlated with other effective factors. Clearly age is the only factor for separation for older teachers. The discrepancy in separation rate at the ages of 54 to 65 is not affected by adjustment. Separation in this age group is solely due to retirement.

Years of Experience (Salary Step): Looking at the category of stay a large difference exists between the levels of 5 to 6 and 7 to 8 years of teaching experience. The steady decrease in separation rate as a functioning of years of experience practically disappears after adjustment for the other factors. The increase and subsequent decrease in leave rates becomes less extreme after adjustment. This effect was accentuated in the uncontrolled rates by the other factors. The increase in transfer rates which occurs up to six years which might have originally been attributed to seniority disappears after asjustment. The anomalous depression in transfer rate at 7 to 8 years of experience remains after adjustment.

Length of Service in the District: There are no systematic detectable differences in patterns in separation, leave of absence, and transfer up to 19 years of serve in the district. However, the cumulative effects of small differences in these categories become apparent in the staying rates. After adjustment there is only a small difference in staying rate between zero and two years of service in the

district. The difference, however, between 5 to 7 and 8 to 10 years of service increases somewhat. The twenty or more years of service category becomes much different from the others after adjustment. The different adjustment rate of separation is nine points higher than the unadjusted difference when we compare the separation rate for this level with the preceeding one. This may be due to differences in retirement benefits depending on years of service in the district.

6. Relations Between Teacher and School Characteristics and Teacher Mobility

Tables C.1. through C.5. give the frequency distributions (and variable values) for San Jose's elementary schools for variables which were included in the between-school regression analyses. Omitted are the control variables and the individual categories of teacher mobility.

Table C.1.

Stem and Leaf Diagram for Student Enrollment of Schools (1969/70)

1	25,83
2	11,31,69,82
3	48,67,69,93,96
4	32,38,48,73,81,92
5	23,43,64,92
6	02,41,55,82
7	10,20,51,77
8	18,53,56
9	
10	09
11	16,91,99

Table C.2.

Steam and Leaf Diagram for Percentage of "Other White" Teachers of Schools (1969/70)

7	33,43,83
8	00,15,24,33,57,61,67,75,75,82,89,93
9	05,09,09,13,23,26,29,37,44,52,55,62,67,76,76
10	00,00,00,00,00,00

[The values are multiplied by 10.]

Table C.3.

Stem and Leaf Diagram for Percentage of Students with "Spanish Surname" (1969/70) By School

[The values are multiplied by 10.)

0	06,16,23,23,48,58,63,63,71,73,76,77,81,86,96,98
1	49,53,66,80
2	52
3	77
4	04
5	11,30,36,79,89,97
6	62,75
7	33,35
8	64,64
9	43

Table C .4

Stem and Leaf Diagram of Percent "Free Lunch" for Schools (1969/70)

0	3,8,9,9
1	0,1,3,6,8
2	0,0,3,3,4,6,7
3	4,5,5
4	1
5	7,8
6	0
7	
8	8
9	
10	0,2,5
11	2
⋮	
14	1
⋮	
15	5
⋮	
20	7

[The values are multiplied by 10]

Table C.5.

Stem and Leaf Diagram for Percentage of Teacher Mobility (1969/70 - 1971/72)
[The values are multiplied by 10] By School

1	25,25,67,67
2	10,22,31,31,61,61,67,73,73,86,86
3	18,20,33,44,53,64,85,89
4	17,44
5	00,00,13,46,81
6	00,15,36,67
7	
8	
9	23

Table C.2.1. Between-School Regression Analyses (Teacher Mobility: 1969/70 - 1971/72)

		Aspect of Teacher Mobility	
Independent Variable		Leave of Absence	Transfer
(a) Pupil Enrollment (ln)	coeff.	-.00933	-.06037
	t	-.34494	-1.26429
(b) % Teachers "Other-White"	coeff.	-.22862	.79922
	t	-1.36299	2.64226**
(c) % Pupils with Spanish Surname	coeff.	-.01334	.41348
	t	-.26668	4.59165**
(d) SES (% pupils receiving free lunch)	coeff.	-.35222	-.44271
	t	-1.47133	-1.02614
Aggregated Teacher Characteristics Control Variable	coeff.	1.67331	1.89116
	t	3.02900**	2.30269*
Intercept	coeff.	.22489	-.56136
Standard error of Estimate		.0609	.1098
Multiple Correlation		.5699	.7595
F-Ratio		2.405	6.816
S D of Dependent Variable		.0677	.1541
Mean of Dependent Variable		.0531	.1446

* $p < .05$
** $p < .01$

In Table C.2.1. the results of between-school regression analyses for transfer and leave of absence are reported. Separation is omitted because none of the school variables was found to influence it.

The tables indicates a significant effect for the aggregrated teacher control variable and leave of absence. No other clearly significant effects emerge but the results for proportion of other-white teachers is consistent with significant effects found in the analyses unreported here. With respect to transfer the table indicates a significant effect of the proportion of pupils with Spanish surname. An increase in this proportion presumably augments transfer rates. This effect is a powerful one which is strongly supported in other analyses for other pairs of years we compared. The proportion of other-white teachers clearly influences the transfer rate positively and this finding holds for some other pairs of years. Also the control variable has a significant effect.

7. Implications for Educational Policy: Some Tentative Comments

Teacher Characteristics: Aside from a few specific findings such as the one concerning early retirement the major finding is that each of the variables previously considered to have strong individual effects on teacher mobility such as age, sex, teaching experience, degree held, and professional growth, have smaller but consistent effects in some cases. The large unadjusted effects which were also found in previous work are clearly due to cummulations of these smaller effects together with the fact that these teacher characteristics are strongly related.

That is, it is reasonable to say that a young inexperienced female teacher has a higher probability of leaving the school because each of the variables, age, sex, and teaching experience makes a separate small contribution to teacher mobility. The district policy should, however, consider teacher characteristics separately and in terms of their individual degrees of impact on teacher mobility uncontaminated by the influences of other variables. Only in this way will decision processes be based on the causal structure of teacher mobility.

An example of an issue of concern is the fact that teachers who hold Master's degrees have higher separation rates than teachers with Bachelor's degrees. If this implies that more effective teachers may be leaving the district at a higher rate then the reasons for this must be clearly explicated in order to form a sound basis for district policy.

School Characteristics: The major finding for school characteristics is that, there are systematic influences on aspects of teacher mobility after adequate control for the differences in the distribution of teacher characteristics from school to school. It is interesting that the school characteristics -- school size and a cluster of SES characteristics -- have no detectable systematic impact on teacher separation. If this finding is supported in other districts and other years it has important implications for teacher assignment policies. It could be due, however, in this case to lack of power in the statistical test. Zero-order relations between the SES characteristics of the schools and separation rate have the expected sign configurations, but the sample size (N=31) is not sufficient for statistical significance.

The findings suggest that there are relations between the social composition of the school and leave of absence and transfer rates. More refined interpretations, however, will have to await confirmatory analyses in other years and in our other district.